Time-Zero
SX-70 AutoFocus Land Camera

Model 2

Polaroid

Split-second automatic focusing

That unexpected moment, that perfect smile, will never again be lost while you pause to set the lens.

The instant you see the picture you want, just touch the shutter button. The lens will spin and set, automatically.

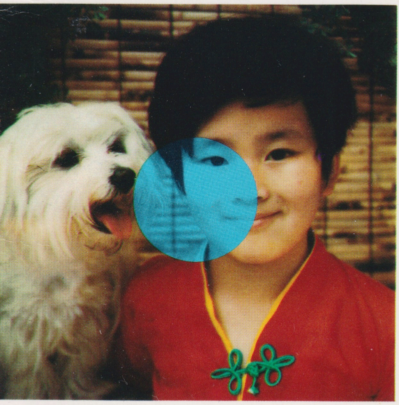
Now, you don't have to waste precious moments focusing. The camera does it for you, with great precision, as you shoot.

(Your camera's advanced focusing system uses sound waves to measure distance. See "How sonar automatic focusing works" inside this foldout.)

How sonar automatic focusing works

As you begin to press the shutter button, your camera releases sound waves to the central part of the scene (approximate area marked in blue).

The frequencies are far beyond our range of hearing and travel at the speed of sound.

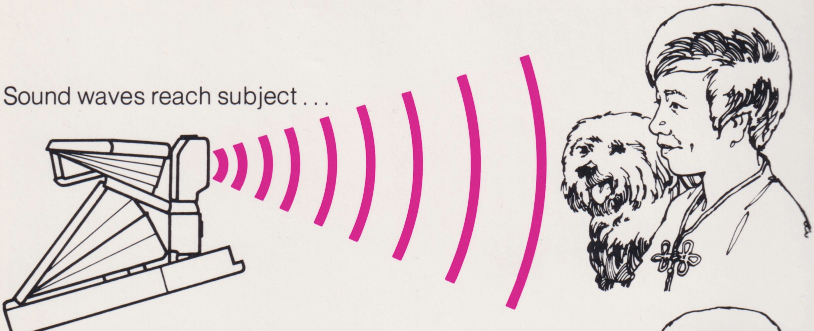


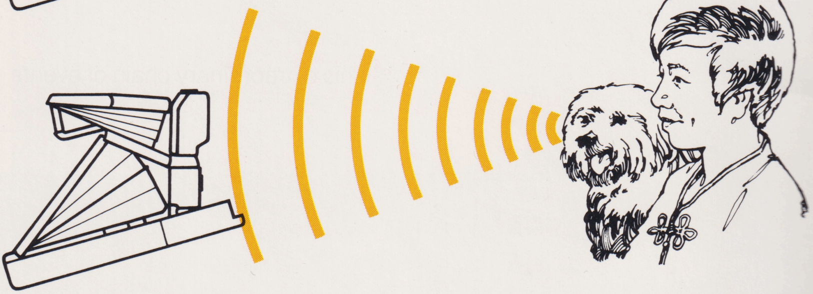
The split second it takes for the sound to reach your subject and the echo to return is fed into a tiny electronic computer inside the camera.

The computer uses this time measurement to calculate the distance to your subject, then signals a motor to turn the lens until your subject is in sharp focus.

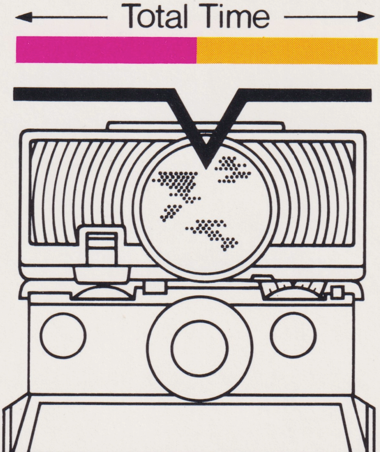
This extraordinary chain of events takes place in less than ⅓ of a second.

Sound waves reach subject . . .





. . . echo returns to camera.



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Please spend a few minutes reading this booklet. It could mean the difference between taking consistently good pictures or disappointing ones.

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from anywhere in the continental U.S.A. except Massachusetts and Alaska. From those states, call collect – (617) 864-4568. Our Customer Service representatives can be reached every weekday from 8 a.m. to 5 p.m., your local time. In Canada, call toll free – 800-268-6970.

Film

Your camera uses only Polaroid SX-70 Land film. Each pack provides ten color pictures and contains a battery that powers the camera.

Flash

For flash pictures, you can use Polaroid's Polatronic Flash or a standard FlashBar. And with both, you won't waste a flash or film.

When the Polatronic Flash unit is turned off or not fully charged, or when all the bulbs on one side of a FlashBar have fired, your camera will not operate – so you won't waste film. And when the film pack is empty, the flash will not fire.

Polatronic Flash #2350
Supplies about 75 flashes with a fresh set of batteries.*

And its 1/1000 of a second flash stops most action indoors for remarkably sharp pictures. The Polatronic Flash range is 10.4 inches to 12 feet from the camera.

Standard FlashBar
Comes with 10 bulbs – five on each side. Your camera will find the next good bulb in a partly used FlashBar. The FlashBar range is 10.4 inches to 20 feet from the camera.

Features

- Automatic and precise focusing in any light, even total darkness.
- Can "preview" before you shoot to see what you'll get in the finished picture.
- Through-the-lens viewing.
- Automatic exposure control for daylight and flash pictures.
- Pictures from 10.4 inches to infinity (flash to 20 feet).
- Can shoot as fast as every 1.5 seconds.
- 4-element, 116mm, precision glass lens.
- Variable aperture from f/8 to f/74.
- Variable shutter speed from 1/180 second to 14 seconds or more.
- Flash in daylight to eliminate shadows.
- Automatic time exposures to 14 seconds or more.

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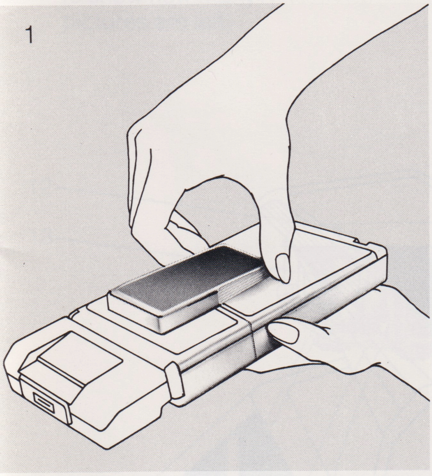
*In general use with fresh alkaline batteries. Industry comparison tests show a higher number of flashes.

To open and close the camera

Opening: Hold the camera in the palm of your left hand. Lift the thin end of the viewfinder cap and pull it straight up until the cover support (A) locks.

Closing: Push the cover support toward the rear of the camera. Press down on the viewfinder cap until **both** sides of the camera latch.

1



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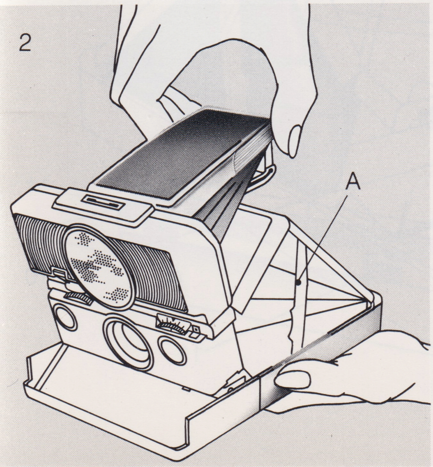

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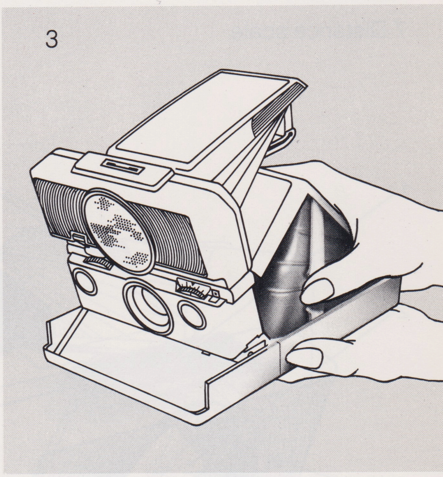

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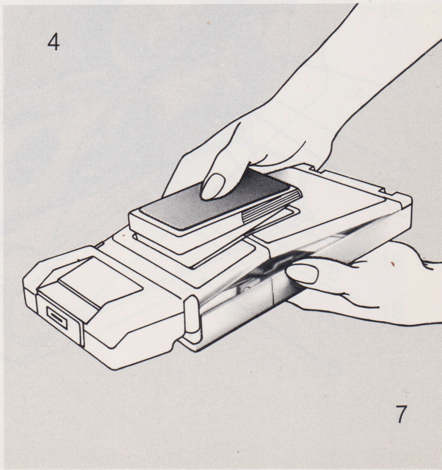


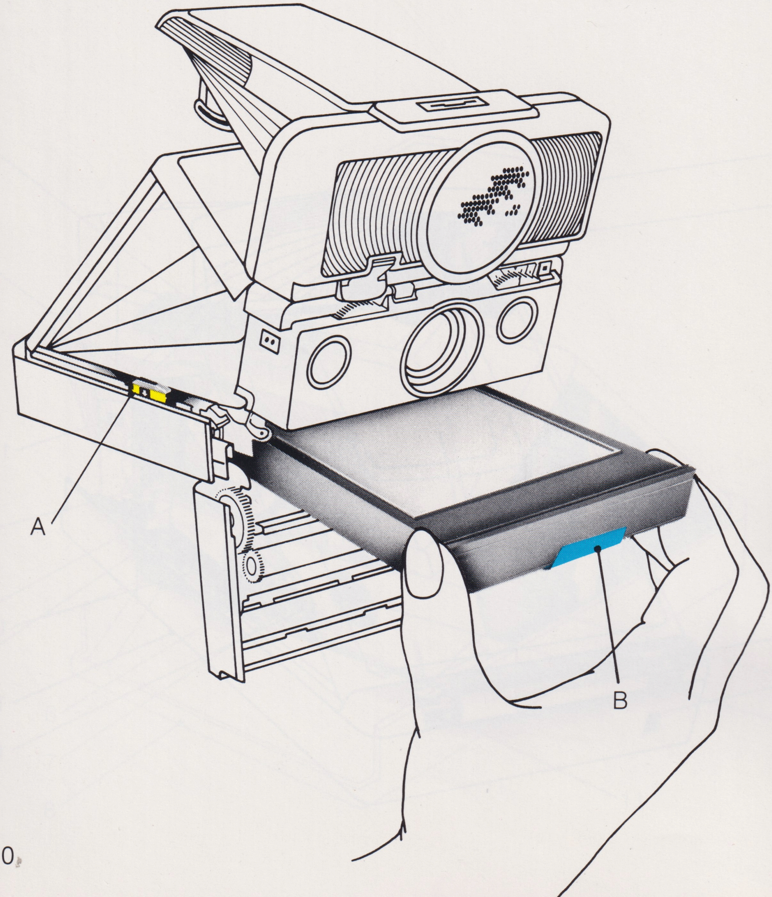
To load the film

Push down on the yellow bar (A). The film door will drop open.

Hold the film pack by its edges *only* and slide it all the way into the camera. (Gripping the pack above and below the colored tab (B) may damage the film.)

On some packs, a narrow plastic strip along the front will snap open when the film pack is pushed all the way in.

Close the film door. You'll hear the camera eject the film cover. To remove an empty pack, pull the colored tab.

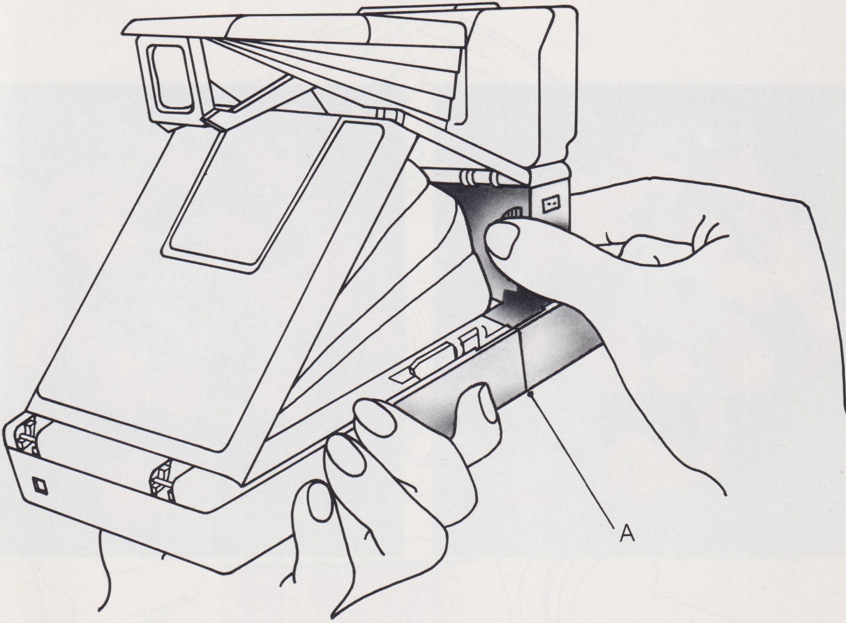


To hold the camera

Grip it firmly in the palm of your left hand, thumb and fingers behind the hinge (A).

Place your right thumb on the semi-circle, index finger on the shutter button, and curl the other fingers into your palm.

It's important to hold the camera as shown. Then, when you squeeze the shutter button, your fingers will not press against the bellows or block the picture exit slot in front.



You can "preview" before you shoot

To familiarize yourself with sonar automatic focusing and "previewing," stand a few feet from your subject. Then look through the viewfinder. Notice that the scene appears unsharp.

Lightly press the shutter button partway and hold it there. You'll hear a brief whirring sound as the lens brings your subject into sharp view. (If film is ejected, you pressed too hard and accidentally took a picture.)

What you now see in the viewfinder is a "preview" of what the finished picture will look like. If it isn't exactly what you want, release the button, change position or camera angle, then *lightly* press again for another "preview." When you're ready to shoot, hold steady and squeeze the button all the way.

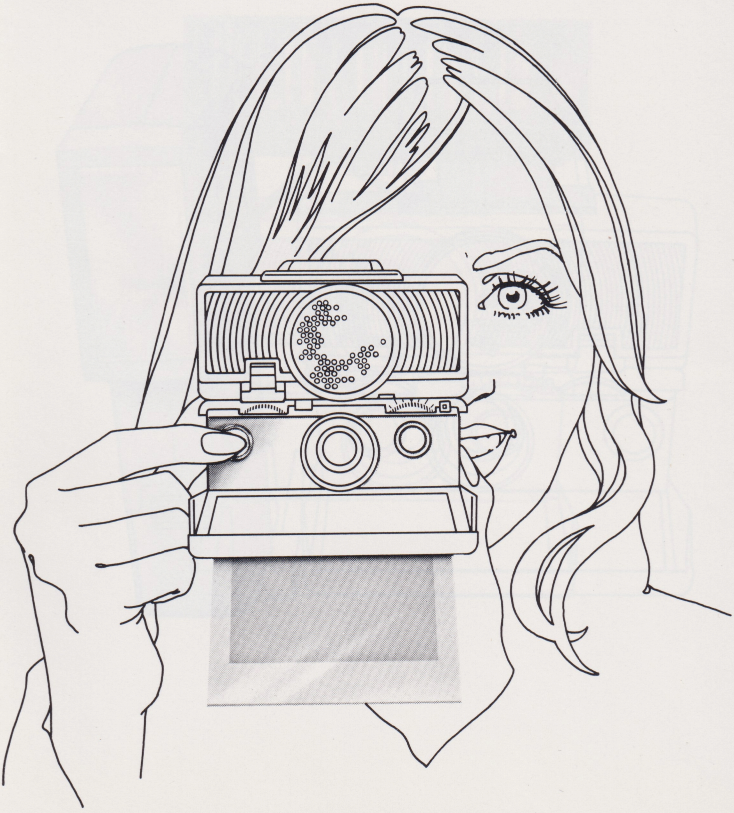
"Previewing" helps you to plan a picture carefully. For quick snapshots, however, there's no need to hesitate. Just aim and shoot as described on the opposite page.

To aim and shoot

Bring your eye close to the viewfinder eyepiece so you can see all four corners of the black frame inside.

Squeeze the shutter button all the way. **Hold the camera steady until the film is ejected.**

Remove and handle the developing picture by its wide white border.

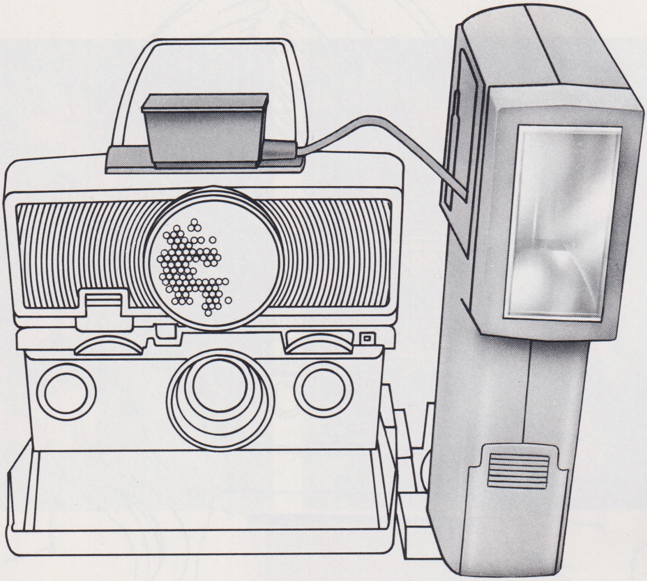


Use flash for most indoor pictures

For indoor pictures, you can use Polaroid's Polatronic Flash or a standard FlashBar.

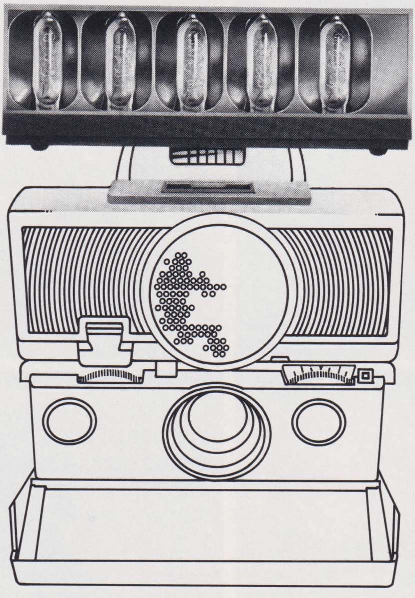
Flash pictures should not be taken where the atmosphere contains gases or dust that may be ignited by a spark.

The Polatronic Flash attaches easily to the camera. See the brief instructions packed with the unit. Its flash range is **10.4 inches to 12 feet from the camera.**



Insert the FlashBar into the flash socket. Always do this with the front of the camera pointing away from you.

The FlashBar range is **10.4 inches to 20 feet from the camera.**



You can use flash in daylight

This exciting feature, called "fill-flash," can correct lighting situations that might otherwise have produced disappointing results.

Although you can use "fill-flash" over the full flash range, you'll get particularly good results when you're **about 5 to 6 feet from your subject.**

Here are the typical ways "fill-flash" can help in daylight:

Strong sunlight can create harsh facial shadows. Flash can fill in the shadowed areas with even, flattering light.

Your subject may be forced to squint when facing bright sunlight. To get the natural expression you want, take your subject out of direct sunlight and use "fill-flash."

When the sun is behind your subject (but not shining directly into the lens), your subject usually will be too dark in the picture. "Fill-flash" can provide the added light your subject needs.

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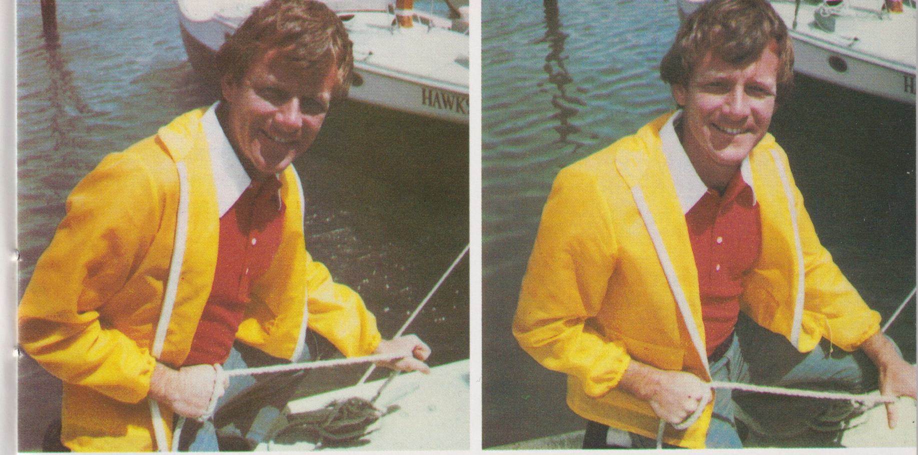

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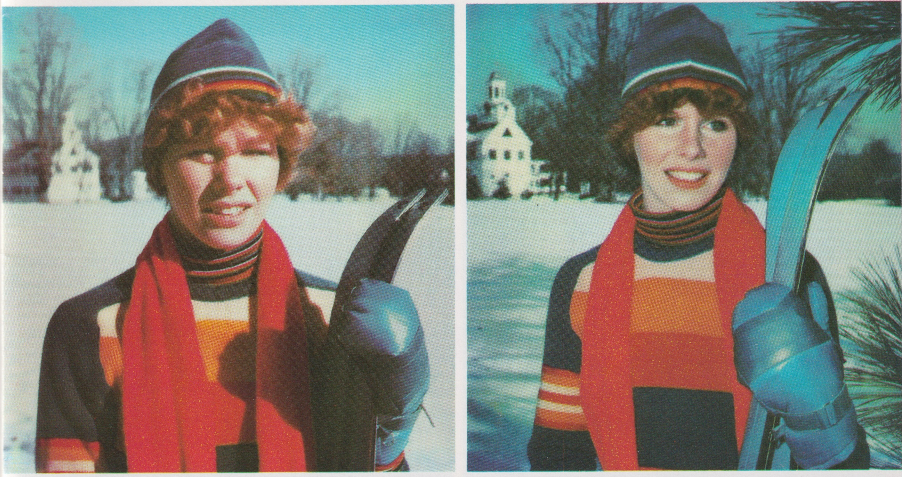
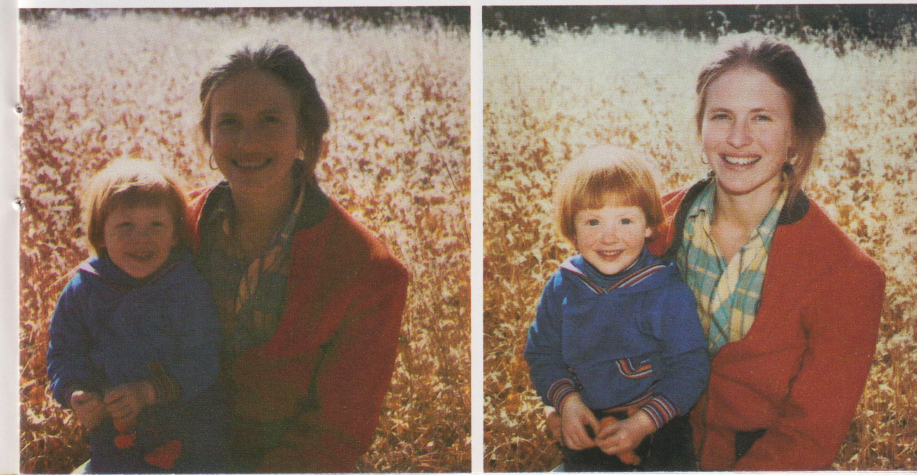


When the sun is behind your subject (but not shining directly into the lens), your subject usually will be too dark in the picture. "Fill-flash" can provide the added light your subject needs.

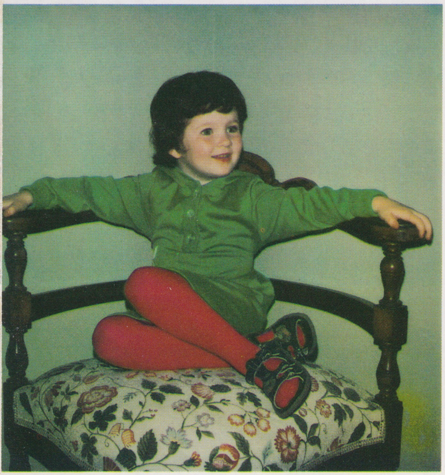


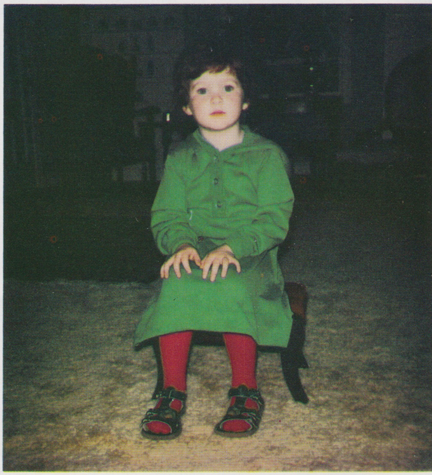
Indoor flash hints

Move in close and watch the background

You'll get particularly good flash pictures of people when they are **5 to 6 feet away** and **near** a colorful background.

When the background is dark, or far behind your subject, or beyond the flash range, it will be too dark in the picture.





Arrange groups carefully

All the people in a group should be about the same distance from the camera. Then everyone will be lit evenly by the flash.

To avoid a flash reflection

When shooting toward a reflective object or background (mirror, window, eyeglasses, etc.), stand to one side of your subject and shoot from an angle (see below).

However, when the reflective surface is smooth and flat and is the central part of your main subject (glass enclosed art, wall hanging, etc.), shooting at an angle may cause the sound waves to reflect away from the camera. If this happens, the lens will be set incorrectly and your picture may be unsharp. To avoid this, you can set the lens manually (see page 28).

Daylight picture hints

It's easy to take beautiful daylight pictures. Just keep these points in mind:

- In bright sunlight, stand so the sun is behind you or to the side.
- Move in close. You'll get particularly good results when your subject is about 5 to 6 feet from the camera. Then important details fill the picture and backgrounds are less distracting.

- Don't just wait for a special occasion. Photograph your subjects when they least expect it. Your camera is perfect for this type of shot—just aim and shoot.

- Save action pictures for bright, sunlit days. Then your camera's shutter will work at top speed. And for best results, have your subjects move toward you rather than across the picture.

  But indoors, Polaroid's Polatronic Flash will stop most action for remarkably sharp pictures.

- Give your subjects something to do. Then they'll feel relaxed, not stiff or posed.

Daylight picture hints continued

- You don’t always need direct sunlight to get great results. This portrait was taken on a bright overcast day. Since the light is diffused, shadows are soft, making it a flattering light for close-ups.

- Include color. Use props. Ask your subjects to wear bold, solid colors or pose them near a colorful background.

- When shooting scenics, include something in the foreground to serve as a natural frame or to show depth or scale.

- Watch the background. It should complement your subjects, not distract from them. Keep it simple.

WATERBROTHER II
SCORPI

PHILLIES
ROYALS
RED SOX
YANKEES

Close-ups

Your camera is designed to open a new world of beautiful, exciting close-up pictures. You can take them in daylight or with flash and no other camera does it so easily.

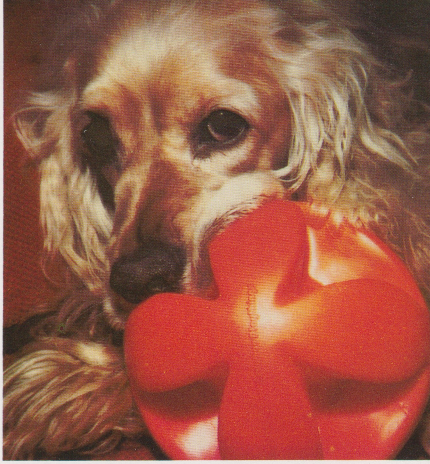
With no accessories, you can come as close as 10.4 inches. Pictures taken at that distance will show your subject at half its actual size.

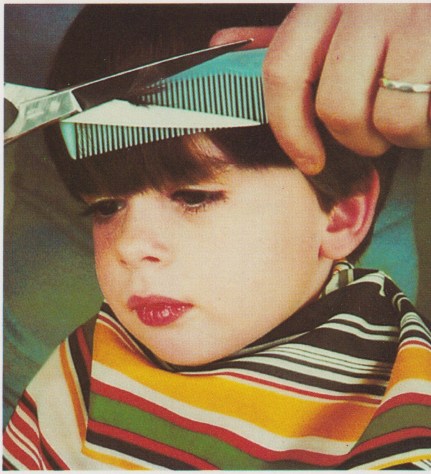
For medium close-ups (pets, children, etc.), look through the viewfinder and as you move in close, *lightly* press the shutter button partway several times to "preview" the picture at various distances. When you see the picture you want, just press the button all the way.

To shoot at the closest possible distance, look through the viewfinder and come closer to your subject than 10.4 inches. *Lightly* press the shutter button partway and hold it there. You'll hear the camera set the lens for 10.4 inches.

Move the camera back and forth until your subject is as sharp and clear as possible. When it is, press the button all the way to take the picture.

To avoid possible discomfort from the flash, extreme close-ups of people should be made in natural light rather than with flash.





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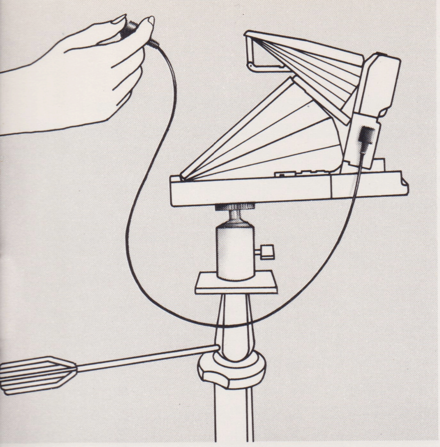
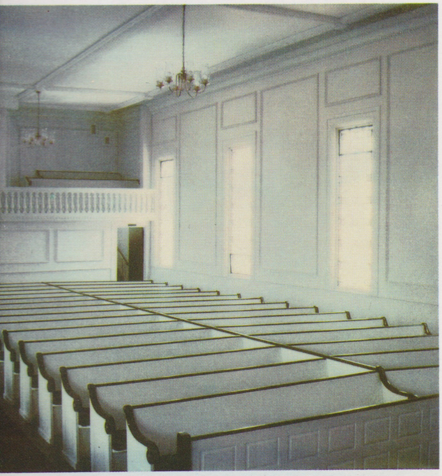




Time exposures

Your camera can make automatic time exposures up to 14 seconds or more.

Keep the camera steady by placing it on a firm support—a tripod is best—and use the Polaroid Remote Shutter Button #112. The tripod socket is on the bottom of the camera.

To take the picture, press the shutter button for at least a second; then release it. The camera will do the rest.

For best results indoors, stand so bright lights are behind you or to the side.

Although pictures taken indoors without flash may not faithfully reproduce the colors of the subject, they often have a charm and beauty all their own.

Tips on outdoor lighting

Outdoors, your camera's electric eye controls the lens opening and shutter speed to let just the right amount of light reach the film.

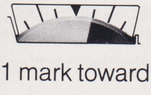
The electric eye works best when the scene is evenly lit. It can be "fooled" by uneven lighting as described below.

Bright backgrounds: White wall, swimming pool, beach or snow scenes, etc.

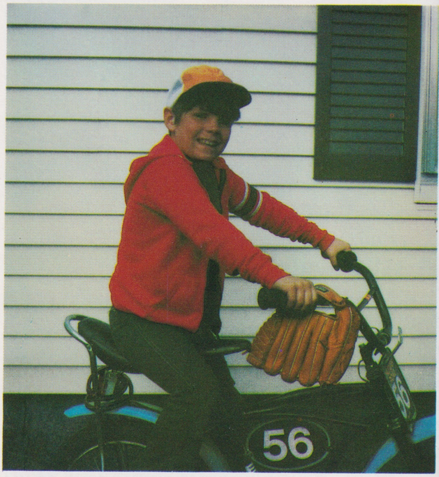
When a bright background is a large part of the scene and reflects more light than your subject, the electric eye sets the camera for the background causing your subject to appear too dark in the picture (top right).

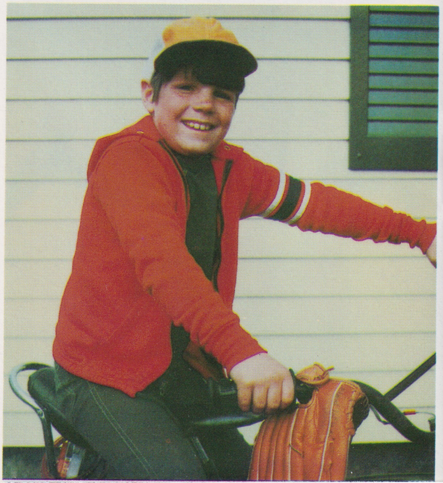
You can do one of two things before taking the picture:

- move closer to your subject to reduce the effect of the background (bottom right).
- turn the Lighten/Darken control toward Lighten (shown below) to lighten your subject.



(Setting: 1 mark toward Lighten)

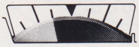




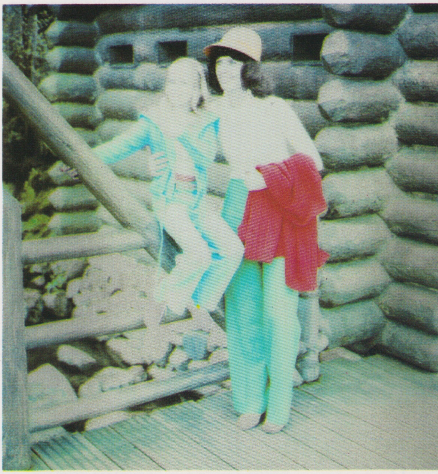
Dark backgrounds: Green foliage, dark wall, etc.

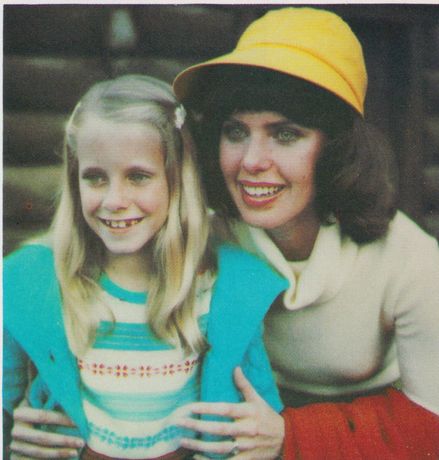
When a dark background is a large part of the scene and reflects less light than your subject, the electric eye will again set the camera for the background. Now, your subject may appear too light (top right).

Again, either move closer to your subject (bottom right) or set the Lighten/Darken control toward Darken (shown below) to darken your subject.



(Setting: 1 mark toward Darken)





To set the lens manually

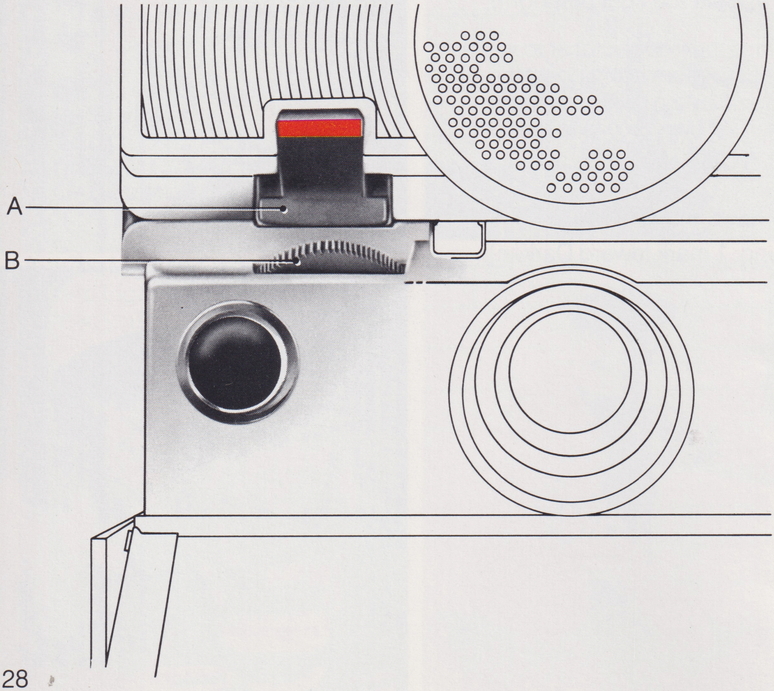
A few special situations call for setting the lens manually:

- When shooting straight-on through glass, the sound waves will not reach your subject. The lens will focus on the glass and your picture could be unsharp. Screens or bars can cause the same result.
- When shooting at an angle toward a flat, smooth surface (glass enclosed art, wall hanging, etc.), the sound waves could reflect away from the camera causing your picture to be unsharp.

Before shooting in these situations, *lightly* squeeze the shutter button partway and hold it there. If your subject appears unsharp in the viewfinder, set the lens manually.

To set the lens manually: Press the bottom of the focus switch (A). Then use the focus wheel (B) as described on the opposite page.

The red bar on top of the switch signals that you've disconnected the sonar automatic focusing system. To reactivate it, press the top of the switch or close the camera. The lens will reset itself.



To use the focus wheel: Look at the most important part of the scene. Roll the wheel all the way in one direction, then all the way in the other. Notice that the image changes from fuzzy to sharp and back to fuzzy.

Return the wheel to the point where your subject began to look sharp and clear. Now roll it a bit in each direction until you're sure your subject is as sharp and clear as possible. You can check your ability to focus accurately by comparing the setting on the distance scale around the lens with the actual camera-to-subject distance.

Need help? Call Customer Service

If you ever have a question about your camera or your pictures, call us toll free…

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from anywhere in the continental U.S.A. except Massachusetts and Alaska. From those states call collect–(617) 864-4568. Our Customer Service representatives can be reached every weekday from 8 a.m. to 5 p.m., your local time. From Canada, call toll free 800-268-6970. For your convenience, these phone numbers are on your camera, under the lens. You can see them when the film door is open.

Or, write to Polaroid Corporation, Customer Service, Cambridge, Mass. 02139, or to Customer Service at any of the locations listed on the back cover. Include your address, phone number and camera model.

All our Service Centers offer walk-in service, too, including while-you-wait repairs in most cases. If you can get to us easily, bring your camera and pictures in.

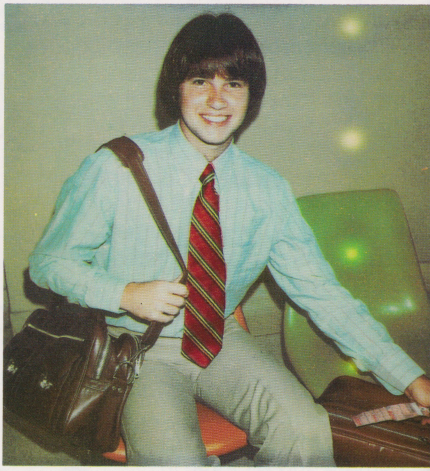
Troubleshooting

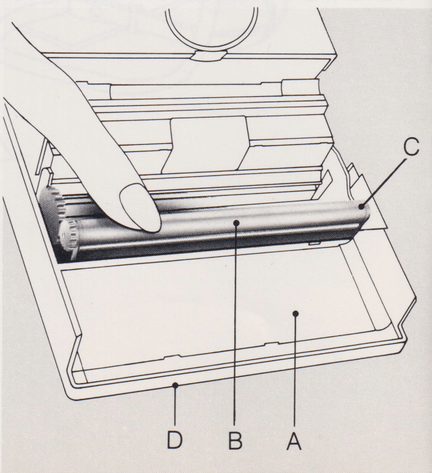
Repeated spots: If a repeated spot or bar pattern appears on the picture, the rollers inside the camera need cleaning.

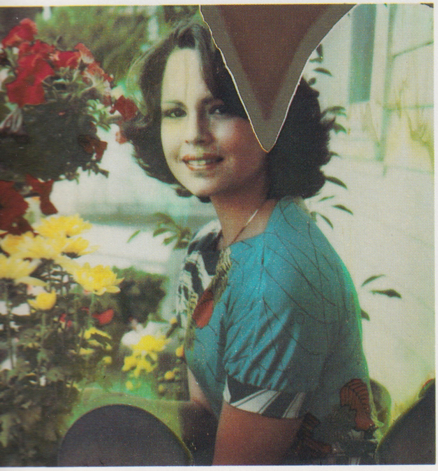
It's best to check the rollers each time you load film.

To clean the rollers: In dim light, open the film door and depress the light shield (A). Rotate the rollers (B). Remove any specks of dirt with a clean, lint-free cloth, moistened with water if necessary. Check the raised ends (C) on the top roller; dirt can collect there too.

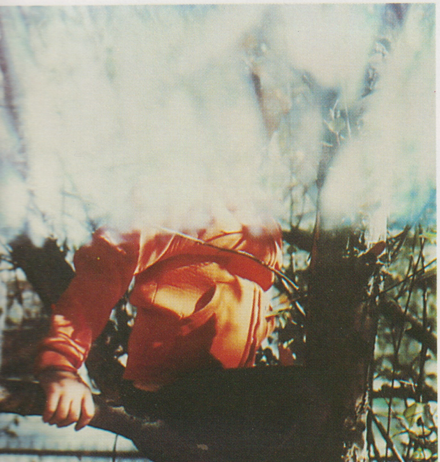
Should you need to clean the picture exit slot (D), insert a stiff piece of paper (like the film cover) in front of the rollers and under the light shield. Push, until it comes out the picture exit slot.







Part of the picture is missing: This happens when you damage the film by squeezing the pack above and below the colored tab. As you load the camera, remember to hold the film pack by its edges.



Part of the picture is fogged: If you press against the bellows while taking a picture, you may block the movement of parts inside the camera. The next picture you take could be partially or totally white or could have streaky light patterns.

Hold the camera as shown on page 11.

Fuzzy pictures can be caused by . . .

1. Moving the camera as you press the shutter button. It is important to hold the camera steady until the film is ejected from the camera.

2. Shooting through glass. The glass will block the sound waves from reaching your subject and the lens will focus on the glass. Set the lens manually (see page 28).

3. The sound waves striking a foreground object and not reaching your subject. As you press the shutter button, the sound waves travel to the central part of the scene (see page 3). Be sure they have a clear path to your subject.

4. Your subject moving as you take the picture. Outdoors in bright daylight, you'll get the best action pictures when your subject is moving toward you, rather than across the picture.

   But indoors, Polaroid's Polatronic Flash will stop most action for remarkably sharp pictures.

5. Shooting at an angle toward a smooth, flat surface. The sound waves have reflected away from the camera. Set the lens manually (see page 28).

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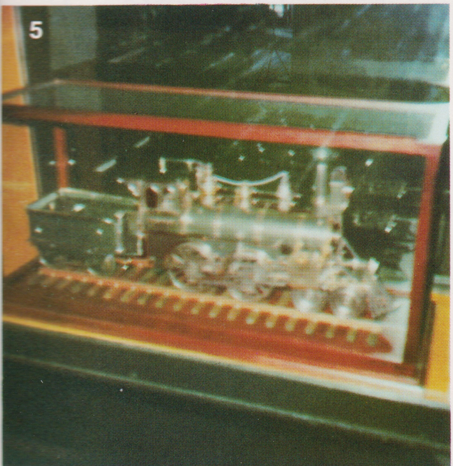
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If the camera doesn't eject the film cover or film

- The battery in your film pack may be dead or weak. Try a fresh pack. If the film cover doesn't come out of the second pack, the camera may need repair. See the next page.

- Check the flash.

  If you're using Polaroid's Polatronic Flash, it signals the camera not to operate when the unit is turned off or not fully charged—so you won't waste film. Check the flash controls to be sure the unit is on and fully charged.

  If you try to take a non-flash picture with the flash unit on the camera, remember the camera will not operate when the flash is turned off. Remove the unit.

  If you're using a FlashBar and all the bulbs on one side have fired, your camera will not operate until you reverse the FlashBar or insert a new one.

  If the camera does not operate when an unused side of a FlashBar faces front, reverse the FlashBar or insert a new one. If you can then take a picture, the first side of the FlashBar was defective. Contact Customer Service.

- If the camera sets the lens but the film does not come out, or if the camera does not reset the lens past infinity (∞) when you release the shutter button, close the camera then reopen it. The jam should clear.

If the camera stops during a cycle

In rare cases, the camera may stop in the middle of an operating cycle. When this happens, you may not be able to close the camera fully. Never try to force it shut.

There are two reasons why the camera may stop. One is jabbing at the shutter button instead of holding it until the film comes out. The remedy is simple—squeeze the button again and hold it. If the camera still doesn't complete its cycle, open the film door in dim light, pull the pack out about an inch, push it in again and close the door. The counter will reset to 10. The camera should complete its cycle, ejecting the top piece of film, which will have been exposed.

The other reason is that the battery in the film pack is weak. Test this by inserting an empty pack if possible, or a new one.

If you insert a fresh pack, the film cover may be partly ejected preventing the door from closing. Remove it and close the door. If you can close the door but the cover is ejected part way, open the door and remove the cover by turning the rollers forward. Never try to force the cover through the rollers without first opening the door.

If your camera needs repair

If you believe your camera needs repair, *before you send it to us* please call Customer Service (see page 31) and explain the problem. We just may be able to save you the time and trouble of returning it.

Your Polaroid Land camera dealer will be happy to return your camera for repair. Or if you prefer, you can bring the camera to a Polaroid Service Center, which offers walk-in service. Many repairs can be made while you wait. You can also talk to our representatives about any picture problems you may have.

Or, you can mail the camera to Polaroid for repairs. Pack it carefully. Address it to the nearest Polaroid Service Center (see back cover). Send it by *insured* parcel post. To make it easier we will, at your request, send a sturdy pre-addressed shipping carton to you anywhere in the U.S.A.

When returning your camera, be sure to include a note clearly describing the camera problem and, if you can, sample pictures which illustrate it.

Polaroid Service Centers try to give the fastest possible service and highest quality workmanship. The goal is to repair and ship all cameras within five working days. Depending on distance and mail service, you can expect to have your camera back in 10 to 14 days.

Film replacement

Return any film pack that has a dead or weak battery to Polaroid or to your dealer, and we will replace it—provided the film has not passed the expiration date on its box.

If you're taking your camera outside the U.S.A.

Try to anticipate your needs and take along an adequate supply of SX-70 film. Or, before leaving, check with the nearest Polaroid Customer Service office for places of supply in other countries.

Care of your system

The camera

Treat your camera with care. Rough handling can damage delicate parts. **Keep the camera closed when not using it.** The lens and viewfinder will seldom need cleaning. If they do, blow off any dust, then wipe them gently with a clean, lint-free cloth. From time to time, clean the rollers inside the film door with a similar cloth, moistened with water if necessary (see page 32).

The film

Polaroid SX-70 Land film, like all film, should be kept cool. If possible, store below 75°F (24°C). For longer storage, keep below 65°F (18°C). In its sealed box, the film can be refrigerated (not frozen). Let it reach room temperature before using it. This will take at least an hour.

To preserve its freshness, keep the film sealed in its protective box until ready for use. Then, take the same care of a loaded camera as you do your film. Keep the camera in a cool place (but not in a refrigerator).

The pictures

When your developing picture comes out of the camera, handle it by its wide white border. Don't bend, crush or fold the picture. Don't cut the picture's borders, this can ruin the picture.

Fingerprints on your pictures can be easily removed. Simply "mist" the surface with your breath, then polish lightly with a tissue or a soft clean cloth.

Electronic flash

If you're interested in buying an electronic flash, the following should help you select a unit that will work well with your camera.

Because of the special electronic circuitry in your camera, an electronic flash unit must have matching electronic characteristics in order to give good picture results.

In addition to Polaroid's Polatronic Flash #2350, Customer Service can list Polaroid approved electronic flash units designed to work with your camera. You can get this information by calling toll free (see page 31).

Electronic flash units other than those listed by Customer Service may not give consistently good results and could cause your camera to malfunction.

These general rules apply to any electronic flash unit: Test it on your camera *at varying distances* before you purchase it. If you get poor picture results, try a FlashBar. If you get good pictures with a FlashBar but not with an electronic flash, the cause of the problem is the electronic flash, not the camera or film.

Polaroid service centers and offices

California
Polaroid Corporation
3232 West MacArthur Boulevard
Santa Ana 92704
Telephone: (714) 641-1200

Georgia
Polaroid Corporation
5601 Fulton Industrial Blvd., S.W.
Atlanta 30378
Telephone: (404) 346-1717

Hawaii
Polaroid Corporation
Suite 153
841 Bishop Street
Honolulu 96813
Telephone: (808) 524-3911

Illinois
Polaroid Corporation
2020 Swift Drive
Oak Brook 60521
Telephone: (312) 654-5252

Massachusetts
Polaroid Corporation
784 Memorial Drive
Cambridge, Mass. 02139
Telephone: Within Mass., call
collect 864-4568. Out of state,
toll free 800-225-1384

New Jersey
Polaroid Corporation
P.O. Box 607
W-95 Century Road
Paramus 07652
Telephone: (201) 265-6900

Texas
Polaroid Corporation
1945 Walnut Hill Lane
Irving 75062
Telephone: (214) 258-8100

Puerto Rico
Polaroid Caribbean Corp.
Charlyn Industrial Park
Road 190, Km 1.7
Carolina 00630
Telephone: (809) 768-1119

Mailing address:
P.O. Box 2032
Carolina 00630

Additional Service Centers:
Besides Polaroid's own Service Centers listed here, there are many other Authorized Service Centers in the U.S.A. To locate the one closest to you, call Customer Service (see page 31).

Australia
Polaroid Australia Pty, Ltd.
Eden Park Estate
31 Waterloo Road
North Ryde, N.S.W. 2113

Mailing address:
P.O. Box 163
North Ryde, N.S.W. 2113

Austria
Polaroid Ges. m.b.H.
Postfach 66
Eitnergasse 13
1233 Wien

Belgium
Polaroid (Belgium) S.A.-N.V.
113 Rue Colonel Bourg
Kolonel Bourgstraat 113
1140 Bruxelles-Brussel

Brazil
Polaroid do Brasil Ltda.
Rua Almirante Marques Leão 408
São Paulo 01330, S.P.

Mailing address:
Caixa Postal 2908
São Paulo 01000

Canada
Polaroid Corporation
of Canada, Limited
350 Carlingview Drive
Rexdale, Ontario M9W 5G6
Telephone: (416) 675-3680

Polaroid Service Centre
8449 Main Street
Vancouver, B.C. V5X 3M8
Telephone: (604) 324-5150

Denmark
Polaroid A.S.
Blokken 75
3460 Birkerød

France
Polaroid (France) S.A.
Office:
57, rue de Villiers
92202 Neuilly

Centre d'Information et de
Démonstration
141-143, Avenue de Wagram
75017 Paris

Germany
Polaroid GmbH
Sprendlinger Landstrasse 109
6050 Offenbach

Great Britain
Polaroid (U.K.) Ltd.
Ashley Road
St. Albans
Hertfordshire AL 1 5PR

Hong Kong
Polaroid (Far East) Limited
Room 3203-3208, 32nd Floor
Windsor House
311 Gloucester Road
Causeway Bay

Italy
Polaroid (Italia) S.p.A.
Via Piave 11
21051-Arcisate (Varese)

Japan
Nippon Polaroid
Kabushiki Kaisha
Mori Bldg. No. 30
3-2-2. Toranomon
Minato-ku
Tokyo (105)

Mexico
Michelmex S.A.*
Apartado Postal #6-952
Mexico 6 D.F.

The Netherlands
Polaroid Nederland
Zonnebaan 45
3606 CH Maarssenbroek

Repairs:
Polaroid (Europa) B.V.
Markt 24
7511 GB Enschede

New Zealand
Polaroid New Zealand Ltd.
Augustus House
15 Augustus Terrace
Parnell, Auckland 1

Mailing address:
P.O. Box 37-046
Parnell, Auckland 1

Norway
Polaroid (Norge) A/S
Industriveien 8B
Postboks 80
1473 Skårer

Panama
Polaroid Interamerican, S.A.
P.O. Box 2167
Colon Free Zone

Singapore
Polaroid Singapore (Pte) Ltd.
701-702, 7th Floor, Tong Building
302 Orchard Road
Singapore 9

Mailing address:
Box 22
Pasir Panjang Post Office
Singapore 5

Sweden
Polaroid AB
Ekholmsvägen 34
127-24 Skärholmen

Switzerland
Polaroid A.G.
Hardturmstrasse, 175
8037 Zürich

Venezuela
Micron C.A.*
Apartado 70250
Ed. America, 4A
Transversal, Urb.
Horizonte
Caracas 107

*Authorized Service Centers